

J. S. Presma

App F IX 4

1932.

File No 262-32

Previous References
ml (i-20-(2-9))

(ml)

Serial Nos ~~1-4-5~~

1-6

Later References

PRESERVED

GENERAL AND REVENUE SECRETARIAT

Serial Nos

Part B for *july 33*

SUBJECT

Report of the committee appointed to consider the operation of settle the details about the laying of new water supply mains in the Bangalore City

st 6

To

Chief Engineer

Comptroller -

Md Commr Bangalore City & the President

Chairman & Members of the Committee

G.O. no L 547-54 Dated 18th july 1933

Passes orders on the recommendations made
per

DEWAN'S MINISTRY
FILE No
GEN. & REE SECT. I
395
14 MAR 1933
L. S. G. BRANCH.

DEWAN'S OFFICE
13 MAR 1933
619

General Secretary

Ml. 262-32-1

I would suggest for the consideration of the
II Member the appointment of a Committee consisting of the
following gentlemen to decide about the laying of the new
mains in Bangalore City:-

Chief Engineer Chairman.

Mr. J. Bhore Member

" K. Srinivasalingar "

" J.J. Mieldazis "

" B.K. Garudachar "

(President of mays)

Has the loan been sanctioned?

ms

DEWAN.

Tracks

A draft

D for con

13/3/33

18/3

(A) A draft Go is submitted

(B) The file relating to the raising
of loan by the Bangalore City
was submitted to Tril Secy on 2/3/33

(L 3530)

~~83.~~ The question as to who should
be the Secy to the Committee, has
to be decided, unless the Chief Engineer
is himself to be the Convenor

83 Cb
14/3/33

J

Serial
No

(encl' decy)

Mon
14/3

For perusal - up to

2nd member

Rg

14/3/33
Mon 14/3

14/3/33

Issy

Rg

15/3/33

Am 15/3

Issue at once

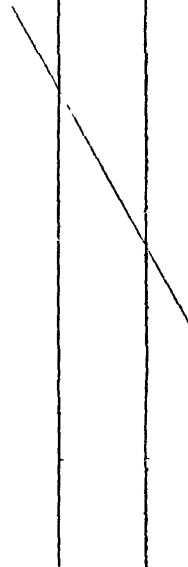
2 Issued no L 5986-94 A 1573133 to chief
Comptroller, Director of Health Member of Committee
Passes orders appointing the Committee

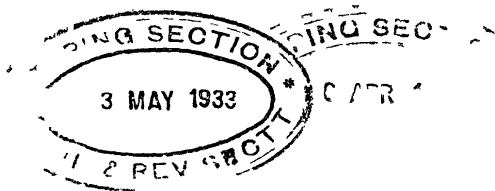
Prosser
on
27
A
15/3/33

File No

of 193

General and Revenue
Secretariat





✓
Inst A
10/4

Report of the Committee appointed
to consider and settle details
about the laying of the new
water supply mains in Poona
in connection with the supply of
water from Shippagondanahalli
Reservoir has not been received

and with a draft of a recommended
draft for approval

Other orders

CB
5/4/33

3 Issue
before issue

sent to the
5/5

To the Chief Engineer
No L 6517 of 7-4-33

Requests to state when the
report may be expected

4 Draft of reminder dated

RMR
3/5

5 Issue
CB
3/5

Forwarded No L 7060 of 3-5-33

4 Letter no 11253 dated 5/5/33
from the Chief Engr in Mysore
forwarding for the orders of Govt
a report of the Committee

6 The main file relating to
the plans & estimates connected
the new Bangalore water supply

451815 L 4973

General and Revenue
Secretariat

File No

267 of 1931

[App F III-2

Serial
No

distinction was sent unofficially on 27/1/33
and the same has not been returned. The Chief
Clerk may be requested to return the same without
delay

7 Draft letter is put up for approval
Submitted

8 Issued on 9/5



915/33

Issued. no. 7366 of 11/5/33 to Chief Clerk. Request
him to return the plans & estimates sent to him on
29/1/33.

Letter no. 11530 dated 13th May 33, from
the same officer, returning the plans &
estimates and stating that the same have
to be revised after Govt orders are passed
on the Committee's report

9) [The Chairman's note accompanying
the report explains the situation clearly]
Submitted for orders

83 CB
15/5

to The original estimates for the six mains
proposed by the Ex. Engr, Water Supply Divn, were
estimated to cost Rs. 3,82,000. ~~What the~~ To what
extent the amount can be reduced under the new proposals
has to be worked
out by means of a separate estimate, after the points
of difference between the Chairman & the other members
of the Committee are considered and a decision reached

Chief Secy

Please see memo

8/5

Rg

8/5

✓
revised once in
3 days
83 11/5

H

* N
(linked file)

✓
Vide Chairman's
note to the
Committee dated
10/5/33

NOTE—Contn Sheet

The new Bangalore city water supply system
 L 4973

26th 1932

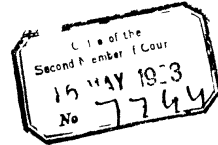
General and
 Secretariat

File No

It is curious that some of the residents of Basavanagur had with Srinivasan said that in view of a difference of opinion in regard to the scheme between the Ch. Pr. & one or two other engineers whose opinion had been sought in the matter, it was desirable to take further professional opinion. It also mentions the names of Messrs. R. R. Lakshmi & S. Srinivasan as the engineers who sit in Council.

See any report to the Ch. Pr. has not been able to get the relation to the above papers in his office. Then we may have some thing sent for & read.

He said in fact, that these two gentlemen had been consulted. R.R. 16/5



II no member.

may be done
 trust more experts do not mean more differences

Seq. P.W. & with Compts.

15 copies of the report of the committee have been sent both to Messrs R.R. Srinivasan & Srinivasan but I have not heard from them. The note is attached. Ch. Sec. with Compts. 19/5/33

Dec. no 230732
 219-5-33.

RECEIVED
 15 MAY 1933
 L. B. O. BANGAL.
 NO 468
 19/5/33

Serial
No

16 From the note of Mr K.R. Seshachar
(with whom Mr Srinivasa Iyer is stated to be in
agreement) an independent main to Basavaneswari
seems to be better than the proposal of Messrs. Phae
and Srinivasa Iyer.

The matter appears to have
been sufficiently considered. The Ch. Iyer's proposed way
perhaps is a good one. ~~After discussion with Mr~~
~~Seshachar~~

17 no meeting
Dewan -

RR
23/5/33
23/5/33

5062
29/5/33

18 Mr Seshachar's note
puts the matter in a clear light
no way & shows the advantages
of having an independent route.
The extra cost is stated to be only
Rs 11,000 by using old pipes
and this amt^l is not too large for
the satisfactory solution of the
long-standing trouble of water
supply to the Southern areas of
the City. I think the subject can
now be finally disposed of, unless it
is considered necessary to have a
further meeting of the office.

Dewan

SPN
23/5/33
29/5/33

DEWAN'S OFFICE
6877
MAY 1933

NOTE—Contn Sheet

DEWAN'S MINUTE

ML. FILE No 262 1932

U 69 The Committee appointed in ⁴G.O. dated 15th March 1933, was requested "to consider and settle details about the laying of the New Water Supply Mains in Bangalore City in connection with the supply of water from the Thippagondanahalli Reservoir". The Committee are unanimous that the need for any new mains for improving the condition of water supply in the old City, is not urgent. They, however, recommend that a duplicate main be laid from the Malleswaram Storage Tanks to the Low Level Reservoir with a view to augment the supplies to the latter and also to prevent the risks of having only one main for feeding it. In these circumstances, therefore, it is ^{not} necessary for the present to deal with estimates Nos. 2 to 6 mentioned in para 1 of letter No. 1321 dated 4th June 1932 from the Executive Engineer, Water Supply Division, to the Chief Engineer. Messrs J. Bhore and K. Srinivasalingar have suggested in their note - Appendix 2 to the Committee's Report - that the duplicate main ^{from the} Malleswaram Storage Tanks may be taken not directly to the Low Level Reservoir but first to the Civil & Military Station Reservoir and on to the Low Level Reservoir. This suggestion may be accepted and the duplicate main may be laid for feeding both these Reservoirs.

W The Committee are agreed that the existing position in the southern extensions of Basavangudi, Gavipur, parts of Viesvesvarapuram ^{Shankapuram} and Chamarajpet, is unsatisfactory and that it calls for an early improvement. They are not, however, agreed in re-

DEWAN'S MINUTE

M1. FILE No 262 19232

regard to the alignment of the new main to be laid for affording substantial relief to these extensions. The Chairman, Mr. Rangaiya, supports the scheme proposed by Mr. Marker. All the other Members are in favour of the alignment suggested by Mr. Garudachar. In view of this divergence of views, the Committee considered another alternative as a temporary measure and this alternative, referred to on page 8 of their Report, has been unanimously recommended by them.

1/ I am convinced on a study of the whole case that for a permanent solution of the problem of affording real relief to the southern extensions of the City, the alignment of the new main, suggested by Mr. Marker, is the best. If a new main should immediately be laid along the route proposed by Mr. Marker, it will be necessary to purchase pipes costing about Rs 1 $\frac{3}{4}$ lakhs. Messrs Bhole and Srinivasalingar rightly pointed out that this cost could be avoided by using the old cast iron pipes of the main from the Soldevanahalli Pumping Station to the Central Jewel Filters. For releasing these pipes immediately they suggest that the steel pipes of the Y Tank might be taken out and re-laid for forming a second main from the Turbanahalli Pumping Station. This arrangement involves, as pointed out by Mr. Marker in his note - Appendix 3 to the Committee's Report - expenditure on re-laying the second main from the Turbanahalli Station, the need for which will cease when the Hessarghatta Works are abandoned.

2/ The cast iron pipes of the main from the

DEWAN'S MINUTE

ML. FILE No 262

1922

Soldevanhalli Station will be available in less than two years for laying a new main to the southern extensions. It is undesirable, therefore, to spend a sum of Rs.1³/₄ lakhs on the purchase of new pipes when serviceable old pipes, which could be used for this purpose, will become available in the near future. The alternative scheme, unanimously suggested by the Committee as a temporary measure in the meantime, is expected to afford some relief to the southern extensions and I think this recommendation of the Committee may be accepted. The final decision in regard to the alignment of the new main to the Basavangudi Extension may be taken when the old pipes become available. The temporary scheme recommended by the Committee is not likely to cost more than Rs.35,000/- and it consists of the following items of work:-

- (1) Removal of cast iron pipes from the 'Y' Tank Main.
- (2) Laying a duplicate main from the Malleswaram Storage Tanks to the Civil and Military Station Reservoir and the Low Level Reservoir.
- (3) Disconnection of sub-tappings from the 9" main to Basavangudi and other minor items.

23 About three miles of ~~the~~ pipes would be required for this duplicate main and I understand that we have our own steel and cast iron pipes of this length in the 'Y' Tank main. An accurate estimate of this work might be prepared. The bulk of the expenditure on this work will be of permanent benefit as it will be incurred on laying a duplicate main to the two Reservoirs which is considered essential for improving the supply to both the City and the Station.

24 If the Second Member agrees, the Municipal Council

DEWAN'S MINUTE
Ml. FILE No 262 19232

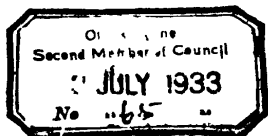
4.7/3
7

might be informed that Government accept, as a temporary measure, the alternative scheme recommended by the Committee and that the question of a new main for serving the southern extensions and of its alignment may be considered after the cast iron pipes of the main from the Soldevanhalli Pumping Station are released. I have discussed this question with Mr. Garudachar and he is quite agreeable to this proposal. He considers that the adoption of the temporary scheme will afford substantive relief to the southern extensions.

note 5/7/33

Rg
3/7/33
3/7

IP no Mamba



25 I agree to the course suggested by the Dewan. It would have been desirable in my opinion to have dealt with the whole question once for all. But in view of the fact that the pipes will not be available for some time, the course proposed seems to be ^{sufficient} ~~necessary~~ to meet immediate requirements.

Sufficient
Rg 4/7/33

Rg 4/7/33

Rg 4/7/33

Bangalore city new water supply distribution
44973

General and Revenue
 Secretariat

File No

262041932

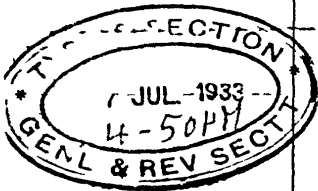
[App F III-2

Serial
 No

DE. 14 JUL 1933

27) Submitted with a draft ⁹⁰ for consideration
 (It is only a draft letter to the Hon' Comr that is wanted, a per
 draft will be put u
 6/7/33 chief secy) am 7/7

28) Type 2 draft - Shd have been put up -
 Please do so now RB
 8/7/33 am 7/7



29) Typed draft is put up -

6/7/33

chief secy)

am 8/7

30) Please see me

RB
 11/7/33

31) Please put up a typed copy of the draft
 as revised under instructions

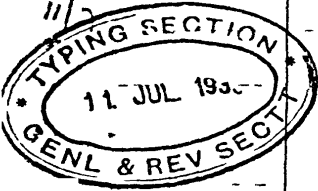
am 11/7

32) Typed draft as revised is put up

8/7/33

chief secy)

am 11/7



33) Please see me

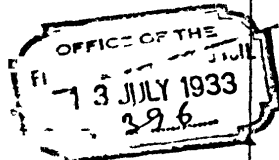
RB
 13/7/33

34) for perusal before isy

RB
 13/7/33

(St. menth -
 below ✓

am 14/7



6/14/7/83 am 14/7

am 14/7/33

RB
 15/7/33

NOTE - Contn Sheet

4711

File No

262 of 193 2

Send not 547-54 of 1877/33. To chief Engr. & 6
members of the committee. Comptroller, etc.

Sanctions the temporary scheme which is 35/-
and request the Engrs to take further steps and
put the work in hand very early

13
12
1917

SUBJECT

Diary No of letter replied to *L 3957*Section *ml*File No. *262-32*Serial No. *2*

General and Revenue Secretariat

(*ml*)

the 193 .

Proceedings of the Government of
His Highness the Maharaja of Mysore

Date of issue

15/3/1933

Read—

Signed by

Mr. A.S. Rao.

May this be—

- (i) printed ?
- (ii) treated as a standing order ?
- (iii) published in the Gazette,
English Part ?
- (iv) translated ?
- (v) placed at the disposal of the press ?
- (vi) published in the Gazette,
Kannada Part ?

Order thereon —No. - *L 5986-94*
Government are, please

to appoint a committee
consisting of the following
gentlemen to decide about
water supply
the laying of the new
reservoirs

in connection with the supply
of water from the Thippaswami
halli Reservoir.

in Bangalore city

- M. N. G. Rangaraja*
- 1) *Chief Engineer (Channarayana)*
 - 2) *Ragasahebaji Phule (member)*
Retired Chief Engineer

p.t

- 3) Mr H. Srinivasengar. Retired Engineer in chief, Mysore (Member)
- 4) J. Mieldazis, Santagynien, Rockfort, Pandah
- 5) " B. K. G. amachar President Bangalore Municipalities.

The Committee is requested to forward forthwith their report upon the
~~Consider the matter without delay and reference~~
 to the project prepared in the B.D. and forward
 its recommendations to Govt before
 27 March 1933-

Hon. General Secy to Govt
 14/3 83

The Chief Engineer in Mysore
 the Director of Health
 The Comptroller to Govt

The members of the Committee
 We compute require early publication in Govt of Mysore

List of Enclosure

9 copies

Copied by

Examined by

Extra

PROCEEDINGS OF THE GOVERNMENT OF HIS HIGHNESS
THE MAHARAJA OF MYSORE.

Read—

C.M.R. No. 2 5-986-94/ Mul 262-32-2

Dated, Bangalore, the 15th March 1933.

Government are pleased to appoint a Committee consisting of the following gentlemen to consider and settle details about the laying of, the new water supply mains in Bangalore City in connection with the supply of water from the Thippagondanahalli Reservoirs:-

orders.

- 1) Mr. H. G. Rangaiya, Chief Engineer (Chairman and Convenor)
- 2) Rajasevasakta J. Thore, Retired Chief Engineer.
- 3) Mr. P. Vinayasingar, Retired Engineer-in-Chief, Mysore Railways.
- 4) Mr. J. J. Mieldazin, Military Engineer, Rockefeller Foundation.
- 5) Mr. B. K. Sarudachar, President, Bangalore City Municipality.

The Committee is requested to favour Government with their report before the end of March 1933.

Asuleva Rao
General Secretary to Govt.

To

The Chief Engineer in Mysore.

" Director of Health in Mysore.

" Comptroller to Government.

" Members of the Committee.

The complete Mysore Gazette for Publication in Part 7 of the Gazette

Government of his highness the Maharaja of Mysore.

GENERAL AND REVENUE DEPARTMENTS

G O No L 5986-94—MI 262 32 2, dated 15th March 1933

Committee

Appoints a ——— for considering details about the laying of the New Water Supply Mains in Bangalore City

ORDER No L 5986-94—ML 262-32-2, DATED BANGALORE, THE
15TH MARCH 1933

Government are pleased to appoint a Committee consisting of the following gentlemen to consider and settle details about the laying of the New Water Supply Mains in Bangalore City in connection with the supply of water from the Thippa-gondanahalli Reservoir —

CHAIRMAN AND CONVENOR

- 1 Mr M G Rangaiya, Chief Engineer

MEMBERS

- 2 *Rajasevasakta* J Bhore, Retired Chief Engineer
- 3 Mr K Srinivasalingar, Retired Engineer in-Chief, Mysore Railways
- 4 Mr J J Mieldazis, Sanitary Engineer, Rockefeller Foundation
- 5 Mr B K Garudachar, President, Bangalore City Municipality

The Committee is requested to favour Government with their report before the end of March 1933

R RANGA RAO,
*Secretary to Government,
General Department*

To—The Chief Engineer in Mysore
The Director of Health in Mysore
The Comptroller to Government
The Members of the Committee
The Compiler, *Mysore Gazette*

Exd —c κ

Confidential

BANGALORE, ml 262-32-3

17th April 1933.

GEN. & REV. SECT.
45/8
18 APR 1933
L.B.G. BRANCH.

R. Ranga Rao, Esqr., B.A., B.L.,

General Secretary to the Government

of His Highness the Maharaja of Mysore,

BANGALORE.

d.s.g. Br
RR
17/4/33
17/4/33

Dear Mr. Ranga Rao,

I herewith enclose joint note by Mr. K. Sreenivasaiyengar and myself regarding the distribution system of the Bangalore water supply for your information.

The original of the note has been sent to Mr. Rangaiya.

Yours sincerely,

submitted for perusal of orders of any
the report from the committee
Rtd. Chief Engineer.

has not been received yet

Ch. Engineer
The was submitted on 7.4.33. and he has explained the
reason for the delay in the submission of the report
18/4/33. in his letter of 18/4/33

18/4
GENERAL SECRETARY
18-4-33

For perusal

This will be held with the Committee
report when received

(see' day)

19 APR 1933
18/4
19/4/33
18/4
19/4/33

*Joint note by Messrs. J. Bhole and K. Sreenivasatyengar
on the distribution system of Bangalore City in continua-
tion of the discussions held in the meeting of 22nd March 33
in the Chief Engineer's Office.*

-----0:-----

*The points on which we wish to draw particular attention are
two in number and they are:-*

- 1) The question of laying on additional 15" main from the
C.J.F. to the Low Level Reservoir and on to Basavanagudi Balancing
tank.*
- 2) The route of the above main.*

*As regards No.(1), we are of opinion that there is no ne-
cessity to purchase any new 15" pipes as proposed by Mr. Marker.
The length of the main required from C.J.F. to L.L.R. is 2½ miles,
and from L.L.R. to Basavanagudi is another 2½ miles. In all 5 mile.
The available C.I. main on Y.Tank connection which will be re-
leased in June ~~or~~ July next will be 1½ miles C.I. pipes, and
X 8 miles of good steel pipes ^{which were} removed from the C & L. Station rising
main. Our proposals are two in number, either of which will
answer the purpose.*

- 1) The 8 miles of steel main available on the Y.Tank connec-
tion may be removed and replaced on the C & M. Rising main from
which they were originally removed. If this is done, there will
be 3 independant Rising mains from Hessargatta to C.J.F. (two of
C & L. Station and one of the City). Any two of these mains will
be ample to pump the maximum quantity of 3½ m.g. both from the
City and C & L. Station Pumping station. Consequently, our propo-
sal is that the two Rising C & L. Station mains may be kept as
reserve for the use of both pumping stations and the whole City*

main of over 12 miles can be removed and used for the distribution of the City.

If this is done, there will be no necessity for two pumping stations also, as the C & H. Station by itself will suffice supplemented by one or two pumping units from the City pumping station. This will reduce establishment charges for both stations, and there will be no necessity to maintain 2 independent pumping stations.

2) The 2nd proposal is to utilize the available 8 miles of steel main from the Y. Tank connection at the Tail End of present Hessargatta main (where the pressure is not more than 200 ft. and which these mains can stand) and release 15" C.I. pipes from the Hessargatta main, of which there should be not less than 5 miles for the City requirements. These with the available $1\frac{1}{2}$ miles of C.I. pipes from the Y. Tank connection will more than suffice for the immediate requirements of the City distribution.

Hence from the above proposals, it will be seen that there is no necessity for purchase of any new pipes for the improvement of the City distribution, and the amount of Rs. 2.2 lakhs provided for the purchase can be saved. The only expenditure will be labour charges which is not expected to be more than Rs. 30 or Rs. 40 thousand. We understand that this amount is still available from the old estimate of Rs. 1.5 lakhs paid jointly by the City and C. & H. Station for the Y. Tank scheme.

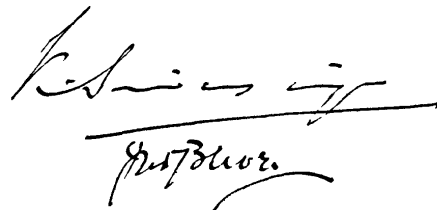
As regards the route of the 15" main from the C.J.F. to Basavanagudi, we are not in favour of the direct route proposed by Mr. Marker, for reasons already given by us and discussed at the meeting.

Mr. Marker recommended the direct route as it is shorter than the other route by 3,000 ft. But if the length of direct route is combined with the length from C.J. to I.I.R., it becomes longer than the other route. Our proposal therefore is to lay a

lay a 15" main from C.J.F. to L.L.R. following the C & M. Station main route, and ^{continue} ~~continue~~ this to Basavanagudi with Bye-pass arrangements both to C & M. Station reservoir and also to L.L.R. to be used in case of necessity. This main to Basavanagudi will be practically a direct and independant main like the direct main through Arlepet proposed by Mr. Marker. The help of this additional main to L.L.R. or C & M. Station will be very rare as the present existing mains are giving the required service. The present main from C.J.F. to L.L.R. is capable of giving by pumping $2\frac{1}{2}$ m.g. and the help of the additional main will be required only occasionally to give an additional supply of $\frac{1}{2}$ m.g. As regards the Basavanagudi supply, the total quantity required per day is million gallon and with a main of 15" from C.J.F. to Basavanagudi the loss of head will be ^{not much} ~~negligible~~. It is needless to say that the supply to L.L.R. may be supplemented during nights when there is less consumption in Basavanagudi and even when this is done, Basavanagudi may still be fed from the L.L.R. without supply being cut off at any time.

Our chief objection to the direct route to Basavanagudi proposed by Mr. Marker is that it passes not only through the lowest parts of the City but through the most thickly populated parts like, Malleswaram, Arlepet, Chamarajpet, Shankerpur and then to Basavanagudi where chances of sub-tapping are greater than on the route proposed by us. In addition to this, the Municipality have practically decided to take up the City underground Sewerage Scheme and in this case the main sewer will run in the Arlepet Road.

Dated, Bangalore.
12th April 1933.


K. Srinivas

IMMEDIATE

Post Address — "MYSORWORKS"

No 11253

Encls 1 Report with 6 Enclosures

PUBLIC WORKS DEPARTMENT,

CENTRAL OFFICE,

Dated Bangalore, 5/5/ 1933

ML 262-32-4

FROM

M G RANGAIYA, Esq, B A, B E, MRSANI, M A M A E,

Chief Engineer of Mysore,
Bangalore

To

The Secretary to Government,

General Department,

B a n g a l o r e

RECEIVED
8 MAY 1933
No. L-8-9

Laying of new water supply mains in Bangalore City

Sir,

Adverting to Government Order No L 5986-94/ML 262-32-2 dated 15th March 1933 constituting a Committee to consider and settle details about the laying of new water supply mains in Bangalore City, I have the honour to forward herewith for orders of Government a report of the Committee together with enclosures enumerated in the margin

This disposes of your letter No L 7060 dated 3rd May 1933

I have the honour to be
Sir,
Your most obedient servant,

M. G. Rangaiya

Chief Engineer of Mysore

5-5/33

- 1 Index plan
- 2 Joint note by Messrs J Bhore and K Srinivasa Iyengar
- 3 Executive Engineer's reply to 2 above
- 4 D O letter dated 9-4-33 from Mr B K Garudachar
- 5 Executive Engineer's reply to 4 above
- 6 Chairman's note

For perusal in the first instance

(to be worked on immediately)
Ch Secy) *8/5*

xx 8/5

TSRN.

File No

Subject

laying of new water supply mains
in Bangalore City

TABLE OF CONTENTS

WD2071—GPB—10,000—23 4 31

Serial No	Communication No	Date	From or to whom	Subject in abstract
				Proceedings of the Committee.
			<u>Appendices</u>	
			1	Index plan.
			2	Joint note by Messrs of Bhimseth & Srinivas Lingappa
			3	Executive Engineer's reply to (2) above
			4	cc letter dated 9 4 33 from Mr B K Sarnadachan.
			5	Executive Engineer's reply to (4) above
			6	<u>Chairman's Note</u>

Subject

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Proceedings of the ^{Second} meeting of the Committee appointed in G.O.No.L.5936-94/L.1.262-32-2 dated the 15th March 1933 to consider and settle details about the laying of new water supply mains in Bangalore City, held on ^{18th April 1933} ~~22nd March 1933~~ in the office of the Chief Engineer of Mysore, Bangalore.

Present:

M.G.Rangaiya, Esq., B.A., B.L., M.R.San.I., M.Am.A.E.
Chief Engineer of Mysore.

CHAIRMAN AND CONVENOR

Members:

1. Rajasevasakta J.Bhore, Esq., A.I.I.C.E.,
Retd. Chief Engineer of Mysore.
2. K.Srinivasa Iyengar, Esq., A.I.I.Mech.E.,
Retd.Engineer-in-Chief, Mysore Railways.
3. J.J.Mieldazis, Esq., B.Sc., C.E.,
Sanitary Engineer, Rockefeller Foundation.
(Present in the first meeting but absent in the second meeting)
4. B.K.Garudachar, Esq.,
President, Bangalore City Municipality.

Mr.H.F.Marker, L.C.E., M.R.San.I., Executive Engineer
Water Supply Division, was present by request of the Chairman.

Preliminary discussions:

The present state of water supply since the turning on of water from Thilpagona Mahalli was discussed and it was observed that ever since the 20th instant the supply in the older parts of the City had improved very much as a result of keeping open the 15" City out-let and distribution mains for a continuous supply. The President of the Municipality said that there was distinct improvement in the heart of the City ^{where he was living,} But there was no improvement in Dasavangudi and Chamarajpet. Mr.K.Srinivasa Iyengar brought to notice the fact that so far the supply to the locality in which he is living showed no improvement. The Chairman ^{on the branch main are not fully closed but} agreed to see that the valves ~~are~~ throttled down to the extent

down to the extent required for giving a supply to the higher levels. Mr. Marker explained that this is being tried already. The results had however to be watched by repeated trials for some more time.

New Mains

As regards the laying of new mains, Mr. B. K. Garudachar, president, Bangalore City Municipality, first explained his views from the Municipal point of view. He observed that, on account of the extremely depressed financial state of the Municipality and the already overtaxed condition of the rate payers, he could not get the required funds for a costly scheme involving an expenditure of about Rs 4 lakhs. Since the Municipality was very hard pressed even to meet the increased annual maintenance cost of nearly Rs 4 lakhs for the new water supply, it was impossible to raise a large fund for meeting the expenditure on the improvements. The scheme had therefore to be limited to the barest minimum of capital cost for meeting the needs for only a period of 10 to 15 at the most and not for 30 years ahead as the scheme now proposed by Mr. Marker contemplates. Besides, he said the old City is already congested and there is no likelihood of any increase in the present population and hence there is no need to provide extra supply based on such increase of population. He added that the Municipality is contemplating the opening of more extensions and that the Binny and Maharaja Mills authorities would build houses for their coolies and much congestion would be removed from the Arlepet area. For these reasons his proposals for immediate relief were:-

- Two Proposals*
- (1) Duplicate the present 15" rising main from the combined Jewell filters to the Low Level Reservoir by another 15" main using old C.I. pipes from either Soldevanahalli or Yelemallappa Chetty tank, to meet the larger demands on the water from the Low Level Reservoir. This main should not be sub-tapped anywhere on the line.
 - (2) Bypass the new main and extend the same from the Low Level Reservoir to Basavangudi, by taking it along the Kantaraj Circle, Cenotaph road, Kumbarpalya, Visvesvarapuram and Kankehalli roads to the south of Basavangudi after avoiding all congested streets and without sub-tapping the line in the lower portions,

distribute the water to Basavangudi and its neighbourhood so as to give relief to this worst affected locality in the whole city.

- (3) deviate the existing new 9" Basavangudi main from Low Level Reservoir to the 1st road, Chamaraipet, and up to 5th road to improve this equally badly affected locality.
- (4) the rest of the system may be allowed to continue as at present existing, but a continuous supply may be arranged from the Low Level Reservoir for all these parts and the results watched and defects remedied as they are noticed.

Mr. Phore observed that the solution lay in considering how best we could meet the situation by removing the Soldevanhalli pipe line and yet safeguard the interests of both the city and the civil and military station. One of the ways suggested by him was to relay the duplicate main belonging to the civil and military station which was taken away for the 'Y' tank line, and reserve the Turbanhalli pumping station for pumping from Hessarghatta in emergent cases. One or two of our pumps could also be installed at Turbanhalli and the required additional pumpage arranged.

Thus the Soldevanhalli pumping station and pipe could be completely released.

As regards the reservation of the pumping stations, two pumping stations would be unnecessary. There need be only one station preferably Turbanhalli and only one agency may work this plant, the costs being however distributed between the city and the civil and military station.

Before commenting on the views of the Municipal President, the chairman requested Mr. Marker, to explain the main features of the scheme prepared by him.

Mr. Marker's Scheme

1. Mr. Marker stated that his scheme contemplated the division of the city into six different zones of supply each independently served by a trunk main from the Combined Jewell Filters. The present state of Bangalore supply was in his opinion never developed scientifically with

a definite lay-out previously conceived for the future growth but was a regular labyrinth of interconnected and by-passed sub-mains always overloaded and of various odd unstandard sizes patched on as and when any necessity to supply even a few houses arose. The result has been that at present since the area of this net work has spread out all over this vast city and its extensions, no part of it can be improved without affecting its neighbour. It is just to avoid this system of interconnected and vaguely defined distribution that his scheme proposes six well-defined zones each of which can be independently controlled and extended as necessity arises. Added to these 6 zones, vide the ~~key~~ key map, there is a separate system for Malleswaram and Sheshadripuram and there is also the system separately fed and maintained from the storage in the High Level Reservoir.

2. All the zones can be controlled from the central station at the headworks near the combined Jewell filters, the highest point of the city where the 24" rising main from Thippagondanahalli ends and fills the two storage tanks of 6 million gallons capacity, one of which is already roofed and the other would be in the course of a few years.
3. Again the division into zones very effectually helps to regulate supply according to the demand and isolate all troubles, instead of as at present in the distribution system if there is a burst in the city main or in the Low Level Reservoir main (as happened as recently as on the 16th of ^{March 1933} ~~this month~~) the whole city suffers except the High Ground and the Malleswaram extensions. These two latter areas have been served direct from the combined Jewell filters all along and have never suffered from water scarcity of the kind experienced in southern extensions due to their being fed from the source direct.

4. This new scheme has been designed to supply enough water for the sanitary and industrial improvements as well for at least 30 years to come, as is the generally accepted practice in the case of water supply schemes for large cities.

5. Then again the sizes of the mains have been so worked out as to utilise all the old available cast iron pipes from our own 'H' and 'Y' tank mains. Only one new main proposed for the Basavangudi Extension, which is the worst effected portion of the city, is to be laid with new pipes at a cost of Rs 2.2 lakhs, since the old mains cannot be released for two years more and this extension cannot wait for this long period. All the other 5 trunk mains put together cost only Rs 1.6 lakhs on account of the proposal to use old pipes.

If this scheme is adopted Bangalore will in his opinion enjoy ample supply for years together.

The chairman desired to have the views of the members on this scheme. Mr. Bhore enquired whether the duplication of the main for the combined Jewell filters to the Low Level Reservoir was not included. The chairman said that this item was contemplated in the Executive Engineer's scheme. But as it was not so urgent as the Basavangudi main it would be taken up after the old mains were released. Mr. Garudachar wanted this work to be taken up first so that it ~~might~~ might be available both for the city and the Extensions. He did not want any other new mains for the City proper.

Messrs Bhore, Mieldazis and K. Srinivasalingar agreed that the existing 18" main from the Low Level Reservoir was enough for the present needs of the old city which could not expand hereafter, whereas the extensions required special consideration ~~must~~ and that

the

the duplicate main from the combined Jewell filters to the Low Level Reservoir would serve both the city and the extensions, as according to Mr. Parker two of these lines could supply 3½ million by gravity or 5 millions by direct pumping. The Municipal president again referred to the question of cost and stated that the present rate payers should not be taxed to contribute for the future of 30 years ahead as provided in the Executive Engineer's scheme.

The chairman at this stage observed that so far as the needs of the city proper were concerned, he had no objection to accept Mr. Garudachar's proposals and omit the additional mains proposed by Mr. Parker along the Avenue road and only lay a duplicate main from the combined Jewell filters up to the Low Level Reservoir. He would also have no objection to omit one of the two 15" mains proposed by Mr. Parker along the Arlepet road, in view of Mr. Garudachar's statement that the Mill authorities would provide habitation for the mill coolies elsewhere and that the congestion there would be relieved.

But so far as the main proposed for the southern extensions was concerned, he could not agree with Mr. Garudachar and other members that it would be sufficient to merely extend the new duplicate main from the Low Level Reservoir along an indirect route via the Cenotaph, Kumbargundi and Vankanhalli roads; because the difficulty for water supply now felt in the Basavangudi, Shankarpur, Gavipur and Visvesvarapuram extensions could not be finally solved with the laying of the separate main itself, but in addition a sufficiently large storage reservoir should be constructed on the hill on which the Pull Temple is situated. This is the only place from which all these extensions and the future extensions which Mr. Garudachar has in view south of the hill, could be commanded and satisfactory and assured service given. The best route for reaching

reaching this objective is to lay an independent main from the combined jewell filters along the gampigey and the Arlepet roads.

so far as the chairman understood, the objections raised by some members to this direct route were mainly two, viz., one referred to by Mr.K.grinivasalingar that just as has happened in the case of the 9" main laid for Basavangudi which has been tapped in a number of places, there would be facility to tap this main authorised or unauthorised through thickly populated portions like Mallerwaram, Arlepet and Chamarajpet en route and the other referred to by Mr.Garudachar that it traverses the Arlepet road which was already a congested locality. In regard to the former objection, the chairman explained that the temptation would not be absent in the case of the other route because it also passes near certain high level or other areas where water difficulty is felt keenly at present, viz., Cubbonpet, Ulsoorpet, Lal Bagh road, &c., and there are important public institutions along side ^{that} ~~the~~ would certainly demand a supply from the new main, as the temptation to sub-tap the mains is concerned, so far, therefore, the difficulty would not be any the less in the case of the alternative alignment of Mr.Garudachar. As Mr.Garudachar has already explained that Arlepet would be ~~thinner~~ thinner in population in the course of a few years, there would be no need either for increase of supply in this locality, and consequently no room for the fear that Basavangudi main proposed along that road would be sub-tapped.

As regards the second objection it is true that the Arlepet road is congested for about 3 furlongs- the rest of the length traversed by the main of about 4 miles ~~is~~ is quite free and open. As only one and not two mains as proposed would now be laid along the Arlepet road, the difficulty is not so great as apprehended by Mr.Garudachar in the short length of 3 furlongs.

but, if on the ground of avoiding additional cost, the independent main is not to be laid, the chairman proposed the following alternative schemes as a temporary measure until such time as an independent main could be laid:-

1. To lay a duplicate main of 15" diameter from the combined Jewell filters to the Low Level Reservoir as agreed to by all the members; to connect this main with the existing Basavangudi 9" main and to disconnect all the sub-tappings from this line so as to reserve the 9" line for Basavangudi and Gavipuram and parts of Visvesvarapuram extensions. Secondly, to connect up ~~the~~ this duplicate main of 15" partially by a bye-pass with the 6" main feeding the Arlepet area and parts of Chamarajpet so as to give increased pressure in the parts served by that main.

The disconnection of the sub-tappings from the 9" main will not affect the areas now served by the sub-tappings because the city supply will also be improved by keeping open valves ~~continuously~~ continuously instead of intermittently as was being done before new supply was started. There would be no need therefore to keep on the connections from the 9" Main.

2. The old 9" main which serves Chamarajpet, Shankarpuram, Visvesvarapuram and Basavangudi could be reserved for Chamarajpet and Shankarpuram and parts of Visvesvarapuram. This scheme would not involve the Municipality in investing funds on new mains in the City or in extensions for some time to come.

All the members of the Committee agreed to the above proposals. But Mr. Srinivasaengar thought that it would be necessary to lay the independent main to Basavangudi also. The chairman said that this could be considered after observing how far the disconnection of the sub-tappings and the reservation of the 9" main for Basavangudi improved the supply. Mr. Srinivasaengar said that he had no objection to this course, but he wanted the view of the committee to be recorded about the route to be followed for the independent main when it came later. The chairman said that ~~the~~ he had no objection to record the view already expressed though personally he felt that the direct route proposed by Mr. Parker was the best under the circumstances and that he had therefore to differ from the other members of the committee in this respect.

Bangalore,

15th April 1933.

M.G. Rangaiya, Esq., B.A., B.E.,

Chief Engineer to the Government

of His Highness the Maharaja of Mysore,

Bangalore.

Dear Mr. Rangaiya,

I herewith enclose a joint note drawn up by Mr. K. Srinivasalingar and myself on the distribution system of Bangalore City in continuation of the meeting held in your office. request you to kindly include this in the proceeding of the meeting and forward same to Government.

Yours sincerely,

Sd. J. Bhone, 15-4-33.

STD. CHIEF ENGINEER.

(True copy.)
N. Lakshmanan 2.333

Appendix 2

Joint note by Messrs.J.Bhore and K.Srinivasa Iyengar on the distribution system of Bangalore City in continuation of the discussions held in the meeting of 22nd March 1933 in the Chief Engineer's Office.

The points on which we wish to draw particular attention are two in number, and they are:-

1) The question of laying on additional 15" main from the C.J.F. to the Low Level Reservoir and on to Basavangudi Balancing tank.

2) The route of the above main.

As regards No.1), we are of opinion that there is no necessity to purchase any new 15" pipes as proposed by Mr.Marker. The length of the main required from C.J.F. to L.L.R. is $2\frac{1}{2}$ miles and from L.L.R. to Basavangudi is another $2\frac{1}{2}$ miles. In all 5 miles. The available C.I. main on Y. Tank connection which will be released in June or July next, will be $1\frac{1}{2}$ miles C.I.pipes and 8 miles of good steel pipes removed from the C & M Station rising main. Our proposals are two in number, either of which will answer the purpose.

1) The 8 miles of steel main available on the Y.Tank connection may be removed and replaced on the C & M Rising main from which they were originally removed. If this is done, there will be 3 independant rising mains from Hesar-ghatta to C.J.F. (two of C & M Station and one of the City). Any two of these mains will be ample to pump the maximum quantity of $3\frac{1}{2}$ million gallons both from the City and C & M Pumping Station. Consequently, our proposal is that the two rising Civil and Military Station mains may be kept as reserve for the use of both pumping stations and the whole City main of over 12 miles can be removed and used for the distribution of the City

If this is done, there will be no necessity for two pumping stations also as the Civil and Military Station by itself will suffice supplemented by one or two pumping units from the City Pumping Station. This will reduce establishment charges for both stations and there will be no necessity to maintain 2 independent pumping stations

2) The second proposal is to utilize the available 8 miles of steel main from the Y. tank connection at the tail end of present Hessarghatta main (where the pressure is not more than 200 feet and which these mains can stand) and release 15" cast iron pipes from the Hessarghatta main, of which there should be not less than 5 miles for the City requirements. These with the available $1\frac{1}{2}$ miles of C.I. pipes from the Y.tank connection will more than suffice for the immediate requirements of the City distribution

Hence from the above proposals, it will be seen that there is no necessity for purchase of any new pipes for the improvement of the City distribution, and the amount of Rs.2.2 lakhs provided for the purchase can be saved. The only expenditure will be labour charges which is not expected to be more than Rs.30 or Rs.40 thousand. We understand that this amount is still available from the old estimate of Rs.1.5 lakhs paid jointly by the City and Civil and Military Station for the Y.tank scheme

Chief Engineer's remarks

This amount is not available in Cash. It is only a provision in the estimate

mead

As regards the route of the 15" main from the Combined Jewell Filters to Basavangudi, we are not in favour of the direct route proposed by Mr.Marker, for reasons already given by us and discussed at the meeting

Mr.Marker recommended the direct route as it is shorter than the other route by 3,000 feet. But if the length of direct route is combined with the length from Combined Jewell Filters to Low Level Reservoir, it becomes

longer than the other route. Our proposal therefore is to lay a 15" main from Combined Jewell Filters to Low Level Reservoir following the Civil and Military Station main route and continue this to Basavangudi with bye-pass arrangements both to Civil and Military Station reservoir and also to Low Level Reservoir to be used in case of necessity. This main to Basavangudi will be practically a direct and independent main like the direct main through Arlepet proposed by Mr. Marker. The help of this additional main to Low Level Reservoir or Civil and Military Station will be very rare as the present existing mains are giving the required service. The present main from Combined Jewell Filters to Low Level Reservoir is capable of giving by pumping $2\frac{1}{2}$ million gallons and the help of the additional main will be required only occasionally to give an additional supply of $\frac{1}{2}$ million gallons. As regards the Basavangudi supply, the total quantity required per day is $\frac{1}{2}$ million gallon and with a main of 15" from Combined Jewell Filters to Basavangudi the loss of head will be not much. It is needless to say that the supply to Low Level Reservoir may be supplemented during nights when there is less consumption in Basavangudi and even when this is done, Basavangudi may still be fed from the Low Level Reservoir without supply being cut off at any time.

Our chief objection to the direct route to Basavangudi proposed by Mr. Marker is that it passes not only through the lowest parts of the City but through the most thickly populated parts like, Malleswaram, Arlepet, Chamaraajapet, Shankarpur and then to Basavangudi where chances of sub-tapping are greater than on the route proposed by us. In addition to this, the Municipality have practically decided to take up the City underground sewerage scheme and in this case the main sewer will run in the Arlepet road.

Bangalore,
12th April 1953.

Sd) K. Srinivasa Iyengar,
Sd) John Bhore.

5
Sa) K. Srin
Sd) John B
W Lakshmanan

Appendix 3

Note by the Executive Engineer, Water Supply Division, on the joint note by Messrs Rajasevasakta J.Bhore and K.Srinivasa Iyengar, regarding the distribution system of Bangalore water supply.

Regarding point No.1 of their note, I wish to state that new pipes were proposed by me for the trunk main for Basavangudi for the sole reason that old pipes could not be released for two years more as per agreement with Civil and Military Station authorities. If it is possible to get old pipes immediately from the existing mains, as suggested by Mr.Bhore, no one will propose to use new pipes and cost can be brought down very much. It was the difficulty of immediately releasing cast iron pipes from Hessarghatta that made us propose new pipes. Of the two alternative proposals made by Mr.Bhore, I prefer relaying the "Y" tank steel pipes to its original place as the rising main from Turbanhalli and release Hessarghatta line. As the latter are all cast iron pipes, they are decidedly preferable to use as mains in the town than old steel pipes which must have been already deteriorated being in use for more than 15 years and which will have to be laid in the sewage sodden soil of the town. There is a provision of Rs.40,000 which is still unspent in the estimate for "Y" plant, for removing this main and relaying back to its original place as a rising main from Turbanhalli. Half of this i.e., Rs.20,000 is to be borne by the Civil and Military Station authorities.

But before we can lay our hand on a single old pipe we have to spend Rs.32,000 plus 37,000 plus 35,000 = 1,04,000 as per first three following estimates and then lay the duplicate main and the Basavangudi main, either on the route proposed by the Department or by them. The duplicate main will

cost Rs.25,000 with old pipes (Estimate IV) and extending the same to Basavangudi as per their route will cost another Rs.50,000 (Estimate V) or in all Rs.1,79,000 (Rs.1,04,000 ^{plus 25,000} plus 50,000 = Rs.1,75,000). Taking our direct route to Basavangudi it costs Rs.61,500 and adding to it the cost of duplicating the main viz., Rs.25,000 the total cost comes Rs.61,500 plus 25,000 plus 1,04,000 = Rs.1,90,500 or a difference of only Rs.11,500 between our route and their route

During the interview given by the Dewan Sahab to the Basavangudi rate payers on the 11th instant he has ordered me to prepare an estimate and call for quotations for removing the pipe line from "Y" tank which I have already done and the estimate is sent to you.

The following are the estimates referred to above:-

1. Removal of 12 miles of 16" steel & 15" cast iron and steel pipes from "Y" tank Rs. 32,000
2. Relaying about 8 miles of 15" steel pipes to Turbanhalli Station from Combined Jewell Filters Rs. 37,000
3. Removal about 9 miles of 16" cast iron pipes from Soldevanhalli to Combined Jewell Filters Rs. 35,000
4. Duplicate main from Combined Jewell Filters to Civil and Military Station Reservoir and Low Level Reservoir about 3 miles long with 15" cast iron old pipes Rs. 25,000
5. Extending the 15" cast iron pipes 2½ miles from Low Level Reservoir to Basavangudi including 12" cast iron new pipes for distribution Rs. 50,000
6. Laying an independant trunk main from Combined Jewell Filters to Basavangudi 4.43 miles with 15" cast iron old pipes and 12" cast iron new pipes for distribution in the route already proposed Rs. 61,500

Total cost with 5	1,90,500
Total cost with 6	1,79,000

61500
35000
25000
121500

It will be seen that 5 and 6 differ to the extent of Rs 11,500 which is all the difference in costs involved between the two routes. All the other items of expenditure have to be incurred in both the proposals

The lengths of mains referred to by them are not five miles for the duplicate main and for Basavangudi out 3 plus $2\frac{3}{4}$ or $5\frac{1}{4}$ for their route. But for our route it will be 3 plus 4.43 or 7.43 miles including the duplicate main to Low Level Reservoir viz., Civil and Military Reservoir and since we are going to use old pipes the extra labour costs are only Rs.11,500.

It is also a point of consideration that we have to spend nearly Rs.70,000 (1st two estimates) for ^{simply}~~simply~~ removing these old steel pipes and relaying them elsewhere for which sum we can as well buy new pipes and let these steel pipes remain where they are as most of them must have been deteriorated by this time or better still wait till the end of 1934, when Hessarghatta line will be available to us without spending this sum of Rs.70,000.

As regards their objection to the route already proposed by me, I invite your kind reference to the very detailed note given by me to the President, Municipal Council, Bangalore City wherein I have shown the necessity for a complete independant main for Basavangudi from Combined Jewell Filters which gives 70 feet head to highest point and 100 to 110 to the centre of the District of Basavangudi. Their route can never act as an independant main to Basavangudi. The Low Level Reservoir will form a very important balancing reservoir for the whole town very soon as the consumption goes high and two mains will be absolutely necessary to feed it and keep up the level. Even the one main that we now have is not enough for present needs and has to be often supplemented by using the

High Level Reservoir main from 9 P.M. to 5 A.M. each day. So very soon we shall need both mains to Low Level Reservoir. Under these conditions the extended main to Basavangudi can never function for 24 hours as in independant main Especially will it be so if we lay the duplicate main to severe Civil and Military Reservoir in case of necessity as per their proposal. Further when we draw even smallest water to Low Level Reservoir then the Basavangudi extended main will lose all its head and it will be the same in effect as though we supply it from Low Level Reservoir and not from Combined Jewell Filters so that their main will be in fact from Low Level Reservoir only thereby losing the advantage of the head which it will have if it is taken direct from Combined Jewell Filters as proposed by us So it will get only 30 feet to 25 feet to highest point and about 60 to 65 to centre of District. They say the extra water to Low Level Reservoir is only occasionally needed to the extent of $\frac{1}{2}$ a million. But I do not agree with them. It will be a daily function very soon and every day this main for Basavangudi can be operated only for about 13 to 15 hours at most.

As regards their objection that a sewer will come along Aralepet, I may suggest that the sewer may be laid not in Aralepet road but in the adjoining Good Shed road where the levels are quite as convenient as in Arlapet road.

Further I must say that chances of subtapping the Basavangudi are almost equally great in their route also. Whereas, if at all any subtapping is necessary our route is the best for subtapping for Chamarajpet and Aralepet which are the worse suffering locality next to Basavangudi. The main is designed for 30,000 population whereas the population of Basavangudi is only 18,000, so that there is room in the main to feed Chamarajpet and Aralepet for some time to come till the population reaches 30,000 or so.

And again the difference of cost between the two routes is only Rs.11,500 which is not a great sum considering ~~in~~ the distinct advantages we get from a direct independent route with a decidedly much better head than their route which cannot be called an independent route and with much less head.

8

'True Copy'
D. Lakshmanan

55.33

Appendix. 4

D.O letter dated 9th April 1923 from the President,
Municipal Council, Bangalore City, to the Chief Engineer of Mysore

As I was absent from Town, I could not acknowledge the proceedings of the Special Committee sent by you.

The proceedings are all right except for one fact re. the reasons given for bringing the line (via) Ulsoor gate, Visveswara-puram and Kankanhalli Road. Most of the points put forth in favour of this have been left out in the proceedings. The objections for bringing the line (via) Arlepet are not only two as stated but there are many more.

*Chief Engineer's
remarks*

*This was
not dis-
cussed
in the meeting*

mlh

The improvement proposed whatever it may be should directly benefit the consumer. Mere bringing the line to Basavanagudi does not improve all the localities. Branch feeder lines have to be laid to feed various localities and the cost of the feeder lines have also to be included if the cost between the two is to be compared. The question of balancing tank on the Bull temple Hill is very indefinite and that should not find a place in this proposal. If that should be included now, then the distribution lines from the tank also should be estimated and the cost added on. ~~Mere~~ Mere construction of tank on the hill may not bring in water to the highly affected localities round about Kankanhalli road specially in the square of Mr. M.N. Krishna Rao's Bungalow. Even if the tank should be constructed it may not command sufficient head to feed all the higher parts of Basavanagudi and the cost of running distributive mains from it would be prohibitive.

Whereas in the other alternative route there is no need for the construction of a tank as the affected localities can be fed directly from the mains. Gavipuram being the lowest portion it may not be a difficult matter to effect fairly good supply therefrom the existing mains.

Question of central control does not come in at all.

*This
fine
room
for main
distribution
by
turn keys - which has to
be minimised mlh*

Wherever the line is laid the control has to be done at the branch lines and not at the starting point. It does not appear

*This is not a distribution main
Chief Engineer's remarks -
This direct feeding from the main before it reaches the highest point is quite objectionable*
gmh

appeal to me how this could be an item of support for your alignment. On the other hand control would be more effective and easier if the main is to be brought in the highest part of Basavanagudi instead of the lowest part.

By giving branch connections to the existing submain in Kankanhalli road the supply to these parts could be directly improved as the new main could be set apart to feed all portion to the west of Fort centre Road and the present 9" line to the east of Fort Centre Road. This could be easily arranged by taking a branch connection to the 9" line from the new line in Kankanhalli Road.

The alternative alignment suggested by me has therefore the following advantages:-

- 1) Line could be brought in less congested parts where the temptation to tap it are less
- 2) It being brought in the most affected parts of Basavanagudi, separate feeder lines to these parts may be avoided and as such it is more economical.
- 3) Better distribution and control could be effected
- 4) Subsequent construction of big reservoirs and the elaborate arrangements of bringing the distribution lines could be completely eliminated, as the highest parts of Basavanagudi could be fed better directly from the main instead of from the proposed balancing tank.

Feeding the low level reservoir from the duplicate ~~main~~ line is to be done only at nights when the draw in Basavanagudi would not be heavy. By direct connection to the pumping main from both the high level and low level reservoirs, the required quantity of water could be easily supplied. As it is learnt ^{that} the with the existing arrangements alone the supply to the City has reached nearly 3 million gallons.

These points may kindly be included in the proceedings as being my views regarding the alignment of the line to be in Kankanhalli Road as proposed by me.

True copy
D. Lakshminarayana
5.53

be through a Reservoir in the highest place of Basavanagudi. Here again the cost of the tank is a common item to both routes and so the cost question of tank does not come in for purposes of the route of the main.

He states that the tank may not feed the square near Mr. M.N. Krishna Rao's Bungalow. But it is equally difficult to feed similar bungalows at the top of west Anjaneya temple road, Sunkenahalli and south-west most extensions if the mere main is laid along Kankanahalli road. Here too we must lay some distribution sub-mains.

He says, there is no need for the construction of a tank as per his new route. On the other hand, it is this route alone that requires the tank much more than the other route. The reason is:-

The main proposed by him is not an independent main direct to Basavanagudi but it has to feed low level reservoir first. *So it is only an extension from the Low Level Reservoir* with a branch feeding the open Reservoir. We can never operate the main with good pressure when we keep even two rounds of valve open to the Low Level Reservoir for feeding it. The pressure falls down. So every day we can operate this extended main only about 13 to 14 hours in the day and draw water to Low Level Reservoir during nights only, when we cannot supply the extension. So to make up for the loss of supply a tank at Basavanagudi on this scheme is more necessary as otherwise we cannot give continuous supply to ^{all} parts of Basavanagudi at all. Again his route is longer than ours, which means some loss of head more than in our route by the time it reaches the proposed tank site.

The idea of central control is not understood properly by the President. In his route there are far more control points than in the ~~xxxx~~ route proposed by us. The valves at Combined Jewell Filters both by pump feed and by tank, than the valves at Low Level Reservoir for feeding either Low Level Reservoir or Basavanagudi, then the valves on all branch lines and the main lines on Kankanahalli road etc., have all to be operated and in addition the tank valves; whereas in my route

My very first and formidable objection to the President's proposal and his route, is that it cannot be called an independant and direct main to Basavanagudi, as is the case with the main proposed by us because according to President's proposal, his main has to perform two functions feeding the low Level Reservoir and feeding the Basavanagudi area. The main cannot simultaneously feed the Low Level Reservoir and also supply water to Basavanagudi area. It is our actual experience when we tried with the present main, that the pressure is broken and its effect is noticed in Basavanagudi area. The low level area will have to serve for the present population of 110,000 people which at the rate of 30 gallons per head per day will require 3.3 million gallons of water. The present main will supply ~~water~~ 2.5 million gallons. So this duplicate main will have to supply $3.3 - 2.5 = .8$ million gallons. It will take ten hours to supply this quantity by the duplicate main, in other words for these ten hours when the low level reservoir is being fed, no water can be ^{let} ~~fed~~ to Basavanagudi area. And as the population increases the matters become still more difficult.

According to the proposed scheme of trunk main, there will be ^{four} ~~2-4~~ 15" main going out from low level reservoir and as such it will have to be fed continuously by the two mains to keep up the level in the Low Level Reservoir, in other ~~xxxxx~~ words, the duplicate main will be busy feeding the Low Level Reservoir leaving no time to bye-pass it to Basavanagudi main which will depend upon Low Level Reservoir only and will not have the same head as it will have if it is taken direct from Combined Jewell Filters.

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Appendix

Laying of new mains in Bangalore City.

Note by the Chairman.

The Committee appointed by Government in G.O.No.L. 5986-94/Ml.262-32-2 dated the 15th March 1933 to consider and settle details about the laying of new water supply mains in Bangalore City, had two sittings, one on the 22nd of March and the other on the 1st of April 1933. The several aspects of the question were discussed during their first sitting and a preliminary draft was circulated to the members. At the second sitting the draft report was again discussed and approved with certain modifications. Copies of the final draft as above modified was then circulated on 3rd April 1933 to each member of the Committee for his signature. Mr.K. Srinivasa Iyengar returned his copy on 5th April 1933 in which he suggested certain further modifications, which have been embodied in the report, while Mr.Bhore followed up by forwarding on 15th April 1933 what he said was a joint note of his and Mr.Srinivasa Iyengar and which he wanted to be incorporated in the proceedings. The note is attached in extenso as an appendix. Mr.B.K.Garudachar wrote a letter on 9th April 1933 giving his opinion in regard to the discussions and requested that his observations be recorded in the proceedings. His letter is therefore appended in toto. Mr.Mieldazis after calling for and obtaining a longitudinal section of the alternative routes for Basavangudi main, has returned the proceedings on 2nd May 1933 duly signed.

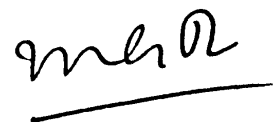
In view of the new points raised by Messrs.Bhore and B.K.Garudachar which were not mooted in the sittings, Mr.Marker, Executive Engineer, Water Supply Division, has at my request submitted two letters in which these fresh points have been dealt with fully and these letters also

accompany the report as appendices

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There is one important question on which difference of opinion has arisen among the members of the Committee and myself. This is in respect of the route for the independent feeder main to Basavangudi Extension. Mr. Garudachar with whom, except myself, all members agree, proposes to take it from the Combined Jewell Filters to the Low Level Reservoir, thence along the Avenue road, Sheshadri road via Ulsurpet, Kumbarpet, Visveswarapuram and through it along the Kankanhalli road and finally to the Basavangudi hill. I consider this to be quite round about and unsuitable as an independent one and recommend the route proposed by Mr. H. F. Marker along the Sarpige road of Malleswaram Extension, thence through the under bridge at the Railway Station, then along the Arlepet road and Shanker Mutt road straight to Basavangudi Extension to be now connected to the existing 9" main at the Booster Pumping situated at the north-west corner of the public square and ultimately with a reservoir on the Basavanna Hill when it is ready.

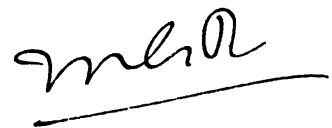
I need only summarise the discussions here. So far as the old city is concerned, in deference to the wishes of the President of the Municipality, the members agreed for the present the existing system be left alone. The main proposed by Mr. Garudachar from the storage reservoir at Malleswaram to the Low Level Reservoir would serve the City and nothing more need be done for improving the internal distribution. The Members agree that for the southern extensions, the laying of one or more mains is found necessary. In order to keep down the cost, one new main is accepted as sufficient for immediate needs. The question is, which of the alternative routes to Basavangudi is to be adopted for this main, whether the route proposed by Mr. B. K. Garudachar through the Low Level Reservoir, or the other direct route proposed by Mr. Marker and recommended by me.



The objections for and against each will be found in the proceedings and in the subsequent notes and letters attached

One objection raised against Mr.Marker's proposal is, that the direct main passes through a lower part of the extension than that through which the other route passes. The portion of Kumbarpet and Visveswarapuram through which Mr.Garudachar's route traverses, is even lower than the lowest point along which Mr.Marker's route passes. When it comes to the Basavangudi limits, Mr.Marker's route does pass through a lower portion, but then it must be remembered that this pipe is only an arterial main to the extension from which water is not intended to be drawn direct for house distribution. The distribution will be through sub-mains connected to the proposed Balancing Reservoir, ultimately, but now it will be from the Booster Pumping Station downwards to certain parts, and from the existing balancing reservoir to higher localities.

Messrs.Bhore, Srinivasa Iyengar and Garudachar are, in taking this objection, thinking of direct distribution from the arterial main which is quite objectionable and should not be allowed. It is because, such tapplings en route have been made from the existing arterial 9" mains to Basavangudi before they reach the Booster Pump and the, Balancing Tank, that the present distribution system is so unsatisfactory, and I do not recommend the repetition of this mistake on the new main until it delivers water at the higher level from where only the distribution should proceed.

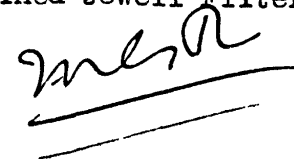


Mr. Garudachar is also trying to confuse the issue by raising an objection on the ground of internal distribution in Basavangudi, which as pointed out by Mr. Marker has to be remodelled sooner or later, whichever route is adopted, according to the requirements of the population in each street or locality. The sub mains are now too small to serve the needs and have to be replaced by bigger ones gradually.

The route for the Basavangudi main proposed by Mr. Garudachar is expressly with the object of feeding the City also through the Low Level Reservoir, while at the same time it aims at improving the supply to Basavangudi Extension. So long as the former object is there, the main taken along this route cannot be called an independent one to Basavangudi and in practice too it cannot give as satisfactory a supply as the independent one proposed by Mr. Marker. It cannot also be controlled from the central distributing station for the whole City viz., the Combined Jewell Filters. This central control is quite necessary to regulate distribution according to the needs of each area and keep down waste. The required pressure cannot be maintained in Mr. Garudachar's route, as pointed out by Mr. Marker, when connected to the Low Level Reservoir as is now being actually experienced.

The direct route does not pass through a crowded locality except for a short length of 3 furlongs of Arlepet road in a total length of ^{about} 4 miles.

As regards cost, if old pipes are used, the difference between the two mains is only Rs. 11,000. Even this cannot be called extra, because the length taken for comparison in one case is from the Combined Jewell Filters



to the Basavangudi hill, while in the other, it is from only the Low Level Reservoir to Basavangudi. If the distance of $2\frac{1}{2}$ miles from the Combined Jewell Filters to the Low Level Reservoir is also ^{added}, the cost will be higher in the case of Mr. Garudachar's route.

An objection not raised during the Committee's sittings, but raised in the joint note of ^{Messrs} Mr. Bhore and K. Srinivasa Iyengar, is about a main sewer that will run in the Arlepet road when the drainage scheme is taken up, which it is argued will interfere with the water main if laid here, and hence they argue that this route is not to be recommended. There is no necessity at all to lay the sewage main in this road as it can be laid in the adjoining Goods Shed road, which is at a lower level than the main Arlepet road. This road is being widened too. The sewage from houses on the Goods Shed road cannot be tapped if the main sewer is laid in the Arlepet road unless it is laid at a very deep level. It is more advantageous to lay the sewer on the Goods Shed road, when there will be no interference with the water main. But if the sewage main is to be laid along the Arlepet road, there will be no difficulty in taking the water main along the Goods Shed road.

For all these reasons, and others that will be found in the proceedings, I am in favour of the direct route proposed by Mr. Marker and am strongly opposed to that proposed by Mr. Garudachar in spite of all the other members agreeing with him. I have no doubt that, ~~the difficulty of proper~~ if the direct route be not now adopted, the difficulty of proper distribution in the southern extensions will not be solved and an independent main will have to be laid in the later years. Then the expenditure on Mr. Garudachar's alternative route will become a waste



There is only one other point to which I wish to make reference here and i.e., the suggestion made in the joint note of Messrs. Bhole and Srinivasa Iyengar and which is also referred to in the proceedings. That is, to remove the cast iron main from Soldevanhalli Pumping Station and use it for the improvement of the City distribution immediately and remove and relay the 15" dia. main from the "Y" tank which is about 12 miles long in place of the Soldevanhalli main and also use part of the "Y" tank main which is of cast iron for the City distribution

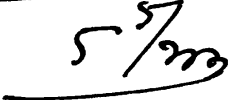
So far as the removal of the "Y" tank main is concerned, there is no objection, because the "Y" tank pumping station is proposed to be abandoned from the end of June of this year and the main will serve no purpose after that date. A mile and ^a/₂ half of this main is of cast iron, while the remaining length is of steel. The cast iron portion would be useful for the City distribution while the steel main being old will not be useful for the distribution but may be used in place of the Soldevanhalli main where the pressure does not exceed 200 feet as stated by Messrs. Bhole and Srinivasa Iyengar

According to an understanding with the Civil and Military Station authorities, we have agreed to keep the existing systems of supply for 2 years after the opening of the Sri Chamarajendra Reservoir and Water Works at Thippa-gondanahalli, when by mutual consent they may be finally abandoned, if in the meantime the new works are found to be entirely satisfactory. The cast iron main from Soldevanhalli will thus be available after 2 years. Even if Mr. Bhole's proposal for the removal of "Y" tank main and relaying in place of Soldevanhalli be adopted, it will take about one year for removing the cast iron main and steel mains and relaying the latter in place of the former, and another year thereafter the Pumping Station itself will be abandoned. The cost of



removal and relaying will ~~cost~~^{be} about Rs.69,000. Whether for the sake of one year's advantage it is worthwhile spending this amount is for the Government to decide. In case the Civil and Military Station agree that only one main which is now running from Turbanhalli to the Combined Jewell Filters be left in tact, so as to serve both the Turbanhalli and Soldevanhalli Pumping Stations, the the Soldevanhalli cast iron pipes will be available at an earlier date. But this is a matter for negotiation.

The decision on this question has, however, no bearing on the issue whether the direct main of Mr.Marker or the alternative indirect main of Mr.Garudachar should be adopted for improving the supply to Basavangudi Extension. It only affects the date from which the improved supply can be given.


Chairman


Bangalore,

May 1953.

TSRN.